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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/569,483

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EXAMINER

STELLING, LUCAS A

ART UNIT

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1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/569,483	Applicant(s) NISHIZAWA ET AL.	
	Examiner Lucas Stelling	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4,5,10,15,16,22-26,33-35,54-56,61 and 62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4,5,10,15,16,22-26,33-35,54-56,61 and 62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 4, 10, 15, 22 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,500,345 to Constantine et al. ("Constantine") in view of U.S. Patent Application Publication No. 2001/0010296 to Hirota et al. ("Hirota").
3. As to claims 4, 10, 15, 22 and 33, Constantine teaches applying a microbe separation treatment of centrifugal separation (**Constantine 16**), and applying chlorination (**Constantine 50 in Fig2 and col. 10 lines 25-30**); after which, the water is transferred to a ballast water tank (**Constantine 30**) and it is then discharged (**See Fig. 2 water exiting tank 30 is discharged**).
4. Constantine is different from claims 4, 10, 15, 22 and 33 in that Constantine contemplates injecting chlorine through a metering device (**Constantine col. 7 lines 27-33**), but does not teach producing the chlorine treating agent from the water. First, it is noted that sea water contains dissolved metal chloride salts. Hirota teaches using an electrolytic cell to produce hypochlorous acid and the hypochlorite ion from water containing chlorides, which is then used to disinfect the water (**Hirota [0010] - [0017]**). Hirota teaches that the use of an electrolytic cell obviates the need for providing chlorinated lime or hypochlorite (**Hirota [0018]**). Furthermore, Hirota contemplates using the described system for a variety of water treatment applications (**Hirota [0001]**), and Hirota is generally directed to the problem solving area of preventing microbial

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growth in water (**[0019]**). Therefore, it would have been obvious to a person of ordinary skill in the art to produce the chlorine treating agent in situ in Constantine in order to obviate the need for storing and administering a chlorine treating agent.

5. Claims 5, 16, 24, and 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Constantine and Hirota as applied to claims 4, 15, 22, and 33 above, and further in view of JP 2003-200156 to Kino ("Kino").

6. As to claims 5, 16, 24, and 35 Constantine and Hirota teach the methods and apparatus of 4, 15, 22, and 33 but do not teach the use additional use of a mechanical damaging treatment unit. Kino teaches the use of a slit plate for destroying microorganisms (**Kino See, e.g., Figs. 1 and 2**). Kino teaches that the use of the slit plate reduces the need for chemical treatment and an increased throughput for effectively treating the water (**Kino [0003] and [0004]**). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to further provide a mechanical damaging plate in the system of Constantine and Hirota in order to reduce the need for chemical treatment and to increase the throughput of the treatment system.

7. Claims 22, 23, 25, 26, 33, 34, 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Constantine in view of Hirota and U.S. Patent No. 6,171,508 to Browning, Jr. ("Browning").

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8. As to claims 22, 23, 26, 33, 34, and 56 Constantine teaches applying a microbe separation treatment of centrifugal separation (**Constantine 16**), and applying chlorination (**Constantine 50 in Fig2 and col. 10 lines 25-30**); after which, the water is transferred to a ballast water tank (**Constantine 30**) and it is then discharged (**See Fig. 2 water exiting tank 30 is discharged**).

9. Constantine is different from claims 22, 23, 26, 33, 34, and 56 in that Constantine contemplates injecting chlorine through a metering device (**Constantine col. 7 lines 27-33**), but does not teach producing the chlorine treating agent from the water and Constantine contemplates drawing the water to be treated from the raw open water, but does not appear to contemplate recirculating the water from the ballast tank.

10. As to producing the chlorine electrolytically, first, it is noted that sea water contains dissolved metal chloride salts. Hirota teaches using an electrolytic cell to produce hypochlorous acid and the hypochlorite ion from water containing chlorides, which is then used to disinfect the water (**Hirota [0010] - [0017]**). Hirota teaches that the use of an electrolytic cell obviates the need for providing chlorinated lime or hypochlorite (**Hirota [0018]**). Furthermore, Hirota contemplates using the described system for a variety of water treatment applications (**Hirota [0001]**), and Hirota is generally directed to the problem solving area of preventing microbial growth in water (**[0019]**). Therefore, it would have been obvious to a person of ordinary skill in the art to produce the chlorine treating agent in situ in Constantine in order to obviate the need for storing and administering a chlorine treating agent.

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11. As to recirculating the water from the ballast tank, Browning teaches a treatment system for ballast water in which the water from the hold is treated in a recirculating line **(See Browning Fig. 3)**. Browning further teaches that treating the water held in the tank in a recirculating manner allows for sterilizing the ballast water without creating an unstable condition in the ship **(Browning col. 6 lines 50-68)**. Therefore, it would have been obvious to a person of ordinary skill in the art to carry out the treatment system of Constantine and Hirota in a recirculating fashion in order to prevent instability in the ship.

12. As to claims 25, and 55, Constantine in view of Hirota and Browning teach the methods of claims 22 and 23. It is further noted that not all navigable waters (such as lakes and rivers) contain substantial amounts of dissolved salts. Hirota teaches transferring a portion of the water to be treated to a tank in order to generate the desired electrolytic solution **(See Fig. 6 and 30a)**. Hirota teaches that providing the tank allows for generation of an electrolytic solution which is used to generate the chlorine treating agent **([0106]-[0108])**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to provide a storing tank in the method of Constantine, Hirota and Browning in order to adjust the level of salt in the water to be electrolyzed.

13. Further, with respect to claims 25 and 55, the order of performing the electrolyzing and separation steps is obvious in the absence of unexpected results. See MPEP 2144.04(IV)(C).

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14. Claims 24, 35, 54, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Constantine, Hirota and Browning as applied to claims 22, 23, 33, and 34 above, and further in view of Kino.

15. As to claims 24, 35, 54, and 61 Constantine, Hirota, and Browning teach the methods and apparatus of 22, 23, 33, and 34, but do not teach the use additional use of a mechanical damaging treatment unit. Kino teaches the use of a slit plate for destroying microorganisms (**Kino See, e.g., Figs. 1 and 2**). Kino teaches that the use of the slit plate reduces the need for chemical treatment and an increased throughput for effectively treating the water (**Kino [0003] and [0004]**). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to further provide a mechanical damaging plate in the system of Constantine and Hirota in order to reduce the need for chemical treatment and to increase the throughput of the treatment system.

16. Claims 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Constantine and Hirota as applied to claims 4 and further in view of U.S. Patent Application No. 2003/0015481 to Eidem ("Eidem").

17. As to claim 62, Constantine and Hirota teach the method of claim 4, but Constantine only provides for centrifugal separation and does not mention filtration using a filter. Eidem teaches the use of a filter in addition to a cyclonic separator (**Eidem [0053]**). Eidem teaches that the use of a filter separates out almost 100% of smaller particles, entrained matter and larger organisms, and also removes a

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substantial part of microorganism before the water is provided to an oxidizing treatment area (**Eidem [0053]**). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to include a filter in the ballast water treatment method of Constantine as modified by Hirota in order to remove almost 100% of smaller particles, entrained matter, and larger organisms, and also a substantial part of microorganisms before treating with ozone.

Response to Arguments

18. Applicant's arguments filed 7-16-09 have been fully considered but they are not persuasive.

19. Applicant argues that Constantine's centrifugal separator does not meet the limitation of the centrifuge for centrifugal separation of comparatively large in the claims because Constantine does not disclose that the centrifuge can remove comparatively large microbes. In response, Constantine provides a centrifuge for removal of sediment from sediment laden water, but also provides that sediment, other solids, and biological particles are separated out (**See Constantine col. 6 lines 45-50**), and provides that at least some of the microbes remain (**See Constantine col. 5 lines 50-55**) after centrifugation. Therefore, some of the larger microbes would be drawn off with the sediment, while some of the smaller lighter particles would remain.

20. Applicant's arguments with respect to claim 62 are moot in view of the grounds of rejection presented above.

21. Applicant appears to base the argument for the patentability of the remaining claims based on the alleged deficiency of Constantine argued for claims 4, 10, 15, 22,

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and 33. However, as this argument was not found persuasive for 4, 10, 15, 22, and 33 it is likewise not found persuasive for these remaining claims.

Conclusion

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucas Stelling whose telephone number is (571)270-3725. The examiner can normally be reached on Monday through Thursday 12:00PM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Las 9-15-09

/Matthew O Savage/
Primary Examiner, Art Unit 1797